approach

NOVEMBER 1980 THE NAVAL AVIATION SAFETY REVIEW

Pratfalls

By LT Dale Smith

WEBSTER'S Dictionary defines a pratfall as: 1) a fall on the buttocks; or 2) a humiliating mishap or blunder. While neither of these occurrences is a particularly attractive prospect, both can easily happen to anyone in the icy, slushy days of winter. In fact, both these definitions can be used, either literally or figuratively, to describe most cold weather mishaps. Let's look at some examples.

LTJG Jonesy Jones dusted the light snow off the left side of his windshield, fired up his V-8 gas hog, and drove away for his 0400 preflight. The roads didn't seem too bad, but as the car rounded the last turn before the gate, the rear end swung around and slapped into a telephone pole. LTJG Jones's belt bias tires with 45,000 miles on them finally let him down. This scenario would definitely come under definition 2 – a humiliating mishap.

LT Jet Jock took off from sunny Florida in his trusty A-7 for a long-awaited cross-country to the state of Maine. After a mid-Atlantic coast fuel stop, he brought his bird into NAS Brunswick. LT Jock executed a snappy break to impress the VP pukes. The runway had been plowed clean, so LT Jock expected no problems when he turned off at the end of his landing rollout and taxied to the transient line. When he reached his designated parking spot, he hit the brakes upon the lineman's command. Unfortunately, the ramp was blanketed with a sheet of thin ice. With the brakes locked, the aircraft slid forward and to the left, impacting the rear of the lineman's tractor. LT Jock, with a lower 10 percent fitness report passing before his eyes, jumped down from his aircraft to inspect the damage. When he hit the icy ramp below, he slipped and fell flat on his back, fracturing his left elbow in the process. He was taken immediately to the dispensary and, after having a cast applied to his left arm, called his CO with the bad news. This little fiasco would easily fall under both definitions of a pratfall – LT Jock busted his rear and his aircraft.

The bottom line is: winter can make anyone look like a clown. Prepare for this upcoming winter season now, and avoid those pratfalls.

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The E-2 Hawkeye photograph on this month's cover was submitted by VAW-122.

By LT Dave Thomas, RN
Naval Safety Center

HYPOTHERMIA

a cold way to buy the farm!

A LOOK at the overall statistics could lead flight personnel to believe that ditched aviators hardly get their feet wet before one or more helicopters arrive on the scene to scoop them out of the briny deep. Unfortunately, this is not always the case. Recently, for example, there have been a couple of incidents where survivors waited some time in the water before rescue forces arrived. One of these involved a P-3 that ditched in the North Pacific. Weather conditions at the scene included winds of about 40 knots and a sea water temperature of 44°F. Three P-3 crewmen, huddled in a liferaft, succumbed within 8 to 10 hours due to exposure.

In cold water, a person will encounter problems immediately after immersion. The sudden shock effect may cause hyperventilation and, following parachute entry, involuntary gasping for air before surfacing. The latter can lead to the ingestion of water and fuel, especially in high sea states or when confronted with negative buoyancy problems. In severe cases, exposed personnel may not be around long enough to be concerned about hypothermia (subnormal temperature of the body).

Having survived initial water entry, the enemy then becomes body heat loss, especially if a person is forced to remain in the water for any length of time. In water, the inadequately clothed and equipped human body suffers heat loss 26 times faster than when exposed to air of the same temperature – the head, neck, underarms, sides, and groin being the main heat loss areas. Through experience, the U.S. Coast Guard defines cold water as that being less than 70°F. Naval Safety Center data provide proof that, within 2 hours following immersion in 65°F water, a person may be subject to uncontrollable shivering. The loss of manual dexterity also occurs early in such a survival situation, making it more difficult to perform required and vital survival actions. As body core temperature falls, heat loss accelerates, especially below 93°F. Blackout usually occurs at a body temperature of about 86°F, but unconsciousness has been known to occur at 93°F. Some survivors have remained conscious at body temperatures as low as 80°F.

Since Navy flightcrews normally fly over water, ditching or parachuting into a cold sea is usually a possibility. Therefore, being prepared for such a crisis is of prime importance. Preparations which will undoubtedly be helpful are discussed below:

- Dress for the occasion – wear antiexposure suits and associated undergarments provided. Ensure what is worn is checked for serviceability prior to each flight.
- Know emergency procedures – especially how to deploy and board any liferaft provided. In a sea survival situation, give high priority to boarding the liferaft, protecting against windchill, and keeping as dry as possible.
- If forced to remain in the water, keep your helmet on to conserve body heat, and ensure your lifejacket is fully inflated to help keep your head above water and as dry as possible. Any subsequent activity such as swimming will produce a faster cooling rate; therefore, once flotation is assured and essential survival actions are completed, stop swimming and assume the Heat Escape Lessening Posture (HELP) (Fig. 1). This is achieved by holding the upper arms securely against the sides with wrists placed over the chest. The ankles are crossed with legs drawn up as close as possible to the chest. If more than one survivor is in the water, assume the HUDDLE position (all survivors face inwards, sides of chests are held close together, and arms are around each other. See Fig. 2). Either of these two actions can increase survival time up to 50 percent. Whatever is done, the body core will still be losing heat, but advance preparation and knowledgeable survival actions can help slow the process significantly.

Naval personnel may at some time be placed in a position of having to treat cases of hypothermia. In the most severe

case, the patient is pale, comatose, and may appear dead. Respirations are slow and shallow and may be difficult to detect. The pulse is faint or absent. Under these circumstances, immediate treatment is necessary and the following actions are recommended.

Initial Actions. Get the patient out of the water as quickly as possible. Carefully check for the presence of pulse and respiration (these are often difficult to detect). If there is no detectable heartbeat or respiration, immediately begin cardiopulmonary resuscitation (CPR). If the victim is still breathing and has a pulse, move him or her to a location protected from exposure to the wind and cold. Carefully remove the patient's wet clothing. This should be accomplished by cutting the clothing away with a knife or scissors. (A hypothermic patient must be handled gently, since excessive manipulation of his trunk, arms, or legs may cause him to go into cardiac arrest.) Next, wrap the victim in a blanket to prevent further heat loss (see procedure on next page). Protect his head and neck, and put a scarf or piece of cloth over his nose and mouth, if necessary, to prevent him from inhaling cold air.

Get Professional Medical Aid. Severe hypothermia is a true medical emergency. The victim must be transported to a site with professional medical care available as soon as possible. If evacuating by helicopter, protect the victim from rotor blast by completely covering him with blankets. If the delay in reaching medical care is expected to be more than 2 hours, some attempt at mild rewarming should be made.

Rewarming. Treatment will depend upon the conditions under which the rescue was executed and the immediate facilities available. Survivors who are rational and possess motor function, although shivering drastically, usually do not require treatment beyond safeguarding against further heat loss and unnecessary activity. If facilities are available for rewarming, they should be utilized, but if the survivor is well insulated and protected from further heat loss, metabolic heat produced by his own shivering will rewarm him in time. Hot, sweet drinks (if fully conscious), rest, and avoidance of an overheated environment are recommended. If the setting is an open liferaft, rewarming most likely will have to be limited to keeping the patient sheltered from the wind and as dry as possible. If necessary, have other survivors in the liferaft act as windshields by using the HUDDLE position. On dry land, more can be done for survivors. If no professional medical help is available, and the victim is semiconscious, unconscious, or apparently lifeless (hypothermia victims showing no signs of life have been saved with proper procedures), waste no time in initiating CPR, if necessary, and begin the following rewarming procedures as soon as possible:

- Handle the patient gently and move him to shelter and warmth as rapidly as possible. Prevent the patient from moving any more than necessary in order to preserve his energy.
- Gently remove the victim's clothing and, during this evolution, ensure he is in an area which will not subject him to degrading windchill/heat loss.
- Cover the victim's sides, top of his head, neck, and trunk areas with blankets/covers.
- Apply external heat to the central core of his body (head, neck, sides, and groin) using hot water bottles or similar devices – rubber gloves, towels, or textiles filled/saturated with water at a temperature of about 105°F (elbow tests warm but does not burn). As items cool, keep rewarming them to 105°F. If none of the above are available, and conditions permit, have other survivors or rescuers remove their clothing and use their bodies as a heat source to warm the victim's naked body.

There are several treatments which should be avoided when administering to a victim of hypothermia. These are highlighted below:

- Alcoholic beverages – Alcohol is a relaxant and may relax the constricted blood vessels in the arms and legs, allowing cold blood to return to the core and further decrease core temperature.
- Other liquids – The indiscriminate administration of liquids should be avoided. In a weakened condition, the victim may draw the liquid into his lungs and cause additional complications. In addition, the amount of liquid that a victim can ingest is so small that its warming effect is insignificant. (Hot, sweet drinks may aid in the treatment of shock, but should be delayed until after the victim becomes rational and regains motor function.)
- Rubbing the body – This may cause injury and stimulate circulation that leads to a further decrease in core temperature. Rubbing the body with snow will only remove additional body heat and may cause cell damage.
- Allowing victim to walk – Walking or other activity increases the rate at which heat is lost.
- Wrapping victim in blankets/covers without an auxiliary heat source – This should only be done when it is to protect the victim against further heat loss before treatment commences.
- Reheating extremities – The head, neck, and trunk are to be reheated prior to the arms and legs.
- Accepting a patient's "I'm okay" – Persons who have been subjected to severe or prolonged cold/wet conditions should not be allowed to walk away without receiving a medical check. Survivors at this stage are still in danger, particularly if they have low body temperatures. Many recorded cases reveal that, as time elapses, body core temperature continues to fall even with corrective treatment. If this occurs, a victim's condition can deteriorate with fatal results. For this reason, persons treating hypothermia victims should ensure that close supervision and monitoring are in effect at all times.

In closing, the following two points are emphasized:

- All hypothermia victims should be seen by a doctor.
- Sensitization to further cold exposure frequently follows all forms of cold injury. The sensitivity may be brief with milder injuries or last for years after severe exposure. ◄

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HYPOTHERMIA WRAP PROCEDURE

1. Lay the victim diagonally across the blanket on a flat surface, placing the top corner of the blanket over the victim's forehead to prevent further heat loss.
2. Fold the left and right sides of the blanket horizontally over the trunk of the body.
3. Pull the bottom corner of the blanket upwards over the groin area.

Confessions of a CAG LSO

By LCDR Robert C. "Barney" Rube
Carrier Air Wing SEVEN

FOR the last 7 years I have been a member of the elite (as we see it) group of naval aviators known as Landing Signal Officers. In this capacity, I have served with pride . . . and fear . . . and frustration . . . but most of all, with satisfaction. I have braved the highs and lows, fasts and slows, and suffered the slings and arrows of outraged pilots who were convinced the pass they just flew was an order of magnitude better than I described it. I've enjoyed the bright smooth days of Case I, where nary a word has been said and dolphins and flying fish watched from port plane guard. I've also sweated out the black, featureless nights on a pitching deck when everybody out there had vertigo and it took everything I had to keep my voice an island of calm in the darkness. Well, in a couple months I'll be waving aboard the last night tanker for the final time, hanging up my pickle switch, and becoming the most obnoxious of all things – an old LSO. The other night as I was listening to yet another impassioned argument from a pilot who "really wasn't low," I decided to sit down, break my vow of illiteracy, and share some observations on this business of landing on aircraft carriers.

Having been a psychology (read: beer) major in college, I tend to look at the human side of man/machine interfaces, of which, making a carrier approach in a high-performance jet must certainly be considered one of the most complex and demanding examples. The pilot must observe the ball position, his angle-of-attack, and his lineup. He must then make stick and throttle corrections which are by no means natural and which demand a certain amount of attention, even for the most experienced among us. The attention thus diverted is taken directly from that which was being used to observe meatball, lineup, and angle-of-attack. The pilot is, in fact, brought hard against the limits of human capability. Thus it is not uncommon to find that even though the pilot was looking at the ball (as opposed to spotting the deck), he wasn't *seeing* where it was.

The nature of naval aviators does nothing to ameliorate the situation. What aviator worth a hoot doesn't believe, deep down, that he's the very best? We are a competitive breed, and each carrier pass is viewed as an opportunity to demonstrate that we have the right stuff. This excessive desire

"What goes up, must come down."
– Sir Isaac Newton

"You know, Jane, it's always something."
– Rosanna Rosannadanna

to get the OK pass can interfere with accurate perception, however. I know there have been times when I've rolled into the groove, congratulated myself on a good start and felt like I had an OK pass wired. But, a second, more objective glance at the ball revealed that I was actually low. Recently, we had a minor lens malfunction wherein the cell just below the center cell was oscillating in intensity. It was educational to debrief all those pilots who claimed they had a centered ball, but complained that it was flashing.

How does one deal with this problem? The first step is awareness. Personally, I've tried to train myself to fly a perfect pass for its own sake, rather than making an assigned grade of "OK" my goal. Maybe this is a subtle difference, but the idea is to become one's own severest critic. Establishing this attitude promotes accurate perception and better feedback, which is the foundation of efficient learning. Recognizing that not everyone will share this philosophy, I have, at intervals, suspended the assignment of grades in the air wing to take away the pressure of competition. It's amazing to observe the increase in agreement between pilots and LSOs during debrief on a day when it is known in advance that passes will not count for Golden Hook competition.

Another perceptual problem frequently encountered is the **Nugget Syndrome** – the tendency, especially among new pilots, to settle below glidepath at night. Commonly, a pilot will feel high and/or overpowered on a night approach when, in fact, he is exactly on glidepath. This is due, in part, to a lack of peripheral cues, but also stems from anxiety about boltering. The settle leads to power calls from the LSO, the pilot then sees that he is low, stiff-arms the throttle and performs a low, flat bolter. The only cure for the problem is experience and convincing the guy that it's not the high in-the-middle that causes bolters but the low, flat in-close.

Now, let's look at the whole process from the other end – from the platform. The LSO is as dependent on accurate perception as the pilot. While Paddles doesn't have to divert his concentration toward coordinating stick and throttle movements, he does have to perform the tricky maneuver of translating nonverbal (right brain) perceptions into logical, verbal (left brain) form for recording in the grade book. Again, the limits of human capability are neared. Paddles, too, can fall prey to perceptual distortions of the sort that afflict pilots.

First, as a controlling LSO who is more than likely still learning his job, he is under pressure to prove his "eye" to the team leader or the CAG LSO looking over his shoulder. Second, especially at night, he is just plain scared of a ramp strike. In the former case, the desire not to miss anything will have the effect of magnifying small deviations in his mind, thus making the pass seem worse than it was.

The answer here is to develop self-confidence. I accomplish this by being as quick to praise as to criticize and, now and then, taking away the pressure to assign a grade by occasionally having all passes graded by readyroom kibitzers utilizing the PLAT. The latter problem promotes the "high eye." In other words, the airplane in the groove at night, especially approaching in-close, represents a threat to the LSO. Unconsciously, the LSO alters his perceptions to lessen the threat and perceives an aircraft that is actually high to be on glide slope. Similarly, an aircraft coming down from high in-the-middle appears to be settling. This is a tough one to counteract; the cure requires continual feedback from the CAG LSO and the development of self-confidence. I also try to direct LSO attention to pilot technique (i.e., drop nose, rough wings, ease gun, etc.) rather than strictly aircraft positioning.

The upshot of the whole discussion is that it is very easy for misunderstandings to occur between pilot and LSO, with consequent derogation of training. It takes a recognition of the pitfalls by all concerned and a sustained effort by the LSOs to counteract them to give each pilot the best opportunity to become a good, and consequently safe, ball flier. However, being a loyal and true LSO, you can imagine with whom I side in any readyroom disagreement, the aforementioned principles notwithstanding. He may be a dirty SOB and an unsuitable date for your sister, but friends, he can save your whole day! **The LSO is always right!**

LT Ted Spilman
LT Alex Snead
LT Bill Kelly
LTJG Bob Julian

BRAVO ZULU

TWO of Fighter Squadron ONE FOUR THREE's crews recently faced the remote hazard of afterburner blowout during or shortly following the catapult stroke. In separate, unrelated incidents, each crew successfully recovered an aircraft from an extremely critical, high gross weight, low airspeed, asymmetrically powered flight regime.

LT Ted Spilman and his RIO, LT Alex Snead, sustained an afterburner blowout at the onset of the catapult stroke. Maintaining a wings-level attitude and countering yaw with rudder, nose swerve was stopped after yawing 30 degrees off the catapult course. Making a shallow rotation and controlling the asymmetrical thrust condition, the crew assessed their problem and successfully "flew away" their 62,000-pound aircraft. After the blowout had cleared, the afterburner was recycled and normal functioning was verified at a safe altitude. Recovery was uneventful. Probable cause was attributed to engine transients/trim and steam ingestion.

Nine days later, LT Bill Kelly and his RIO, LTJG Bob Julian, sustained an even greater thrust loss due to an inlet ramp malfunction immediately after leaving the catapult. Having discussed the previous squadron incident, LT Kelly had routinely performed a shallow rotation. Upon feeling the yaw, LT Kelly was "spring-loaded" to the opposite rudder reaction and limited wings-level yaw to 10-15 degrees. The aircraft weighed 66,000 pounds. LT Kelly had immediately raised the landing gear to reduce drag at the end of the shot. As the gear started up, the ramp-induced engine stall produced almost total asymmetrical thrust and severely degraded climb capabilities. Three to four miles ahead of the ship, the aircraft was still at 200 feet, but an acceleration to 170 knots had been accomplished. After "flying the aircraft first," the crew analyzed the air inlet control system (RAMP) programmer failure, stowed the affected ramp, and climbed to a safe altitude. Recovery was uneventful.

Both crews reacted promptly and precisely in similar *extremis* situations which have previously claimed aircraft and lives. Superb pilot skills, crew coordination, and cool analysis in immediate-action emergencies saved two valuable aircraft. A well deserved Bravo Zulu to both these professional crews.

Left to right: LT William A. Kelly, Jr., LTJG Robert G. Julian, LT Theodore L. Spilman III, and LT Leonard A. Snead III.

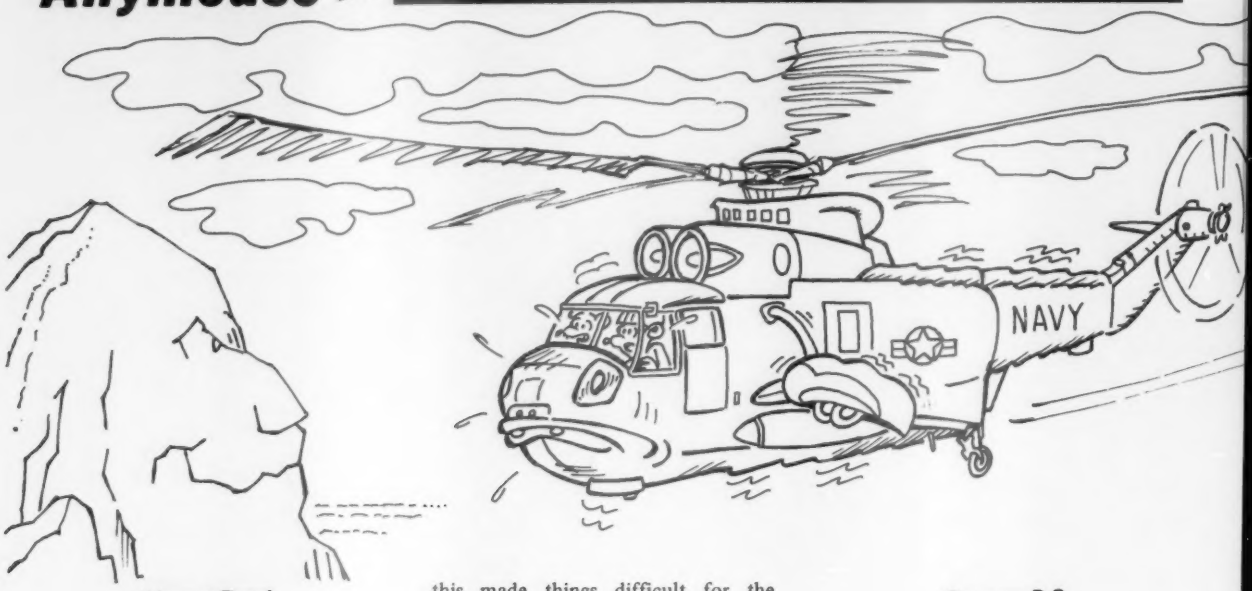
AVIATION SAFETY DURING SPECTATOR EVENTS

IN August 1980, the Chief of Naval Operations promulgated a message to selected commands concerning aviation safety during spectator events. Because of its importance to all aviation commands, the contents of that message are quoted below:

"Several recent incidents have highlighted a lack of guidance and direction in OPNAVINST 3710.7J relative to participation in flight demonstrations and static displays, both public and nonpublic. The preceding instruction is currently being revised to ensure adequate guidance for conducting these events in the most safety conscious manner. Pending receipt of this revision, the following policy is established regarding naval participation in any display in which civilians may be expected to participate:

- "Personnel assigned to aircraft static displays shall be selected for their maturity, appearance, personality, demonstrated sound judgment, and knowledge of equipment. Commanding officers shall ensure that the pilot in command is particularly sensitive to any hazards which his aircraft might present to an uninformed spectator and to the damage to public trust in the Navy risked when a member of the public is injured or killed and Navy equipment is involved.
- "There exists an absolute requirement that the crew of an aircraft used for static display be at the aircraft at all times the public has access to it, not only to provide information about the aircraft, but to insulate it and the public from each other.
- "The public shall be denied access to the interior of all aircraft which employ ejection seats or which have other pyrotechnic devices installed which could cause injury.
- "Ancillary equipment (workstand, etc.) must be in good working condition and suitable for the purpose for which it is intended. If, in the case of workstands or platforms, sufficient crewmen or other competent supervisory personnel are not available to control spectator loading to safe limits, then access thereto shall not be permitted."

Anymouse



Almost Dead

RETURNING from a SSSC mission in weather that had been fair at best down to almost no vis in rainshowers, Approach offered a CCA for my helo. Since the ship wasn't in sight at the time, and thinking it would be good practice, I accepted. I was given a climb to 1200 feet and a vector to set up for the approach. Landing checks were completed and a downwind vector was given, along with a descent to 600! The turn was made while descending, and at about 700-800 feet we broke out of the clouds, facing a very large mountain less than a mile away. Seconds later we initiated a turn for terrain avoidance and notified the controller of the presence of the mountain – it was the first he knew of it.

The following are pertinent factors:

a. The ship was holding 3-5 miles from the entrance to the bay, making regular turns to maintain position – this made things difficult for the controller in setting up his approach.

b. The ship's air search radar is designed for just that; the controller can't pick mountains out of clouds on it.

c. The H-3 has no radar and is dependent on someone else to keep it away from objects hidden within the goo.

Controllers and aviators need to be especially aware when the ship is operating near land. Had we known there was a mountain 3 miles east of the ship, either the controller with his radar, or we with our TACAN, could have avoided placing our aircraft in that area. Then again, I had a general idea that land was east of the ship, but at an unknown distance, and had I known the controller's limitations, I might have questioned being vectored to that side of the ship. I'll certainly follow less blindly when operating near land in the future.

Mountainmouse

Gear-up P-3

I AM an instructor pilot in a fleet VP squadron who is beginning to wonder not if another gear-up landing will occur in a P-3, but only where and when it will occur. After flying the P-3 for almost 11 years, including duty as an IP in the RAG, I have been witness to no fewer than 10 *bona fide* attempts to land gear up, wherein the pilot at the controls was not aware that he had failed to call for the landing checklist. Luckily, in all of these situations, the other cockpit crewmembers were watchful enough to ensure that the gear was lowered. However, within the last 4 months, aboard my current squadron, I have seen three pilots forget to call for gear down and the landing checklist during training flights under simulated emergency situations. Most alarming in these three situations was the fact that *only* I as the IP in the right seat was aware of the situation – neither

The purpose of Anymouse (anonymous) Reports is to help prevent or overcome dangerous situations. They are submitted by Naval and Marine Corps aviation personnel who have had hazardous or unsafe aviation experiences. These reports need not be signed. Self-mailing forms for writing Anymouse Reports are available in readyrooms and line shacks. All reports are considered for appropriate action.

REPORT AN INCIDENT
PREVENT AN ACCIDENT

the flight engineer nor the pilot at the controls was aware. In all of these occurrences, the "wheels" light had been cancelled upon request of the pilot flying the aircraft!

I am now wondering even more why an aircraft as valuable as the P-3 is not equipped with an aural warning device (horn) as are other large aircraft certificated by the FAA. It seems apparent that our present combination of a "wheels" warning light and three pairs of eyes, along with a landing checklist (and wheels watches at military fields) will not be sufficient to prevent yet another gear-up landing in the future. The past safety record of the P-3 in this regard seems to bear this prediction out.

Patrolmouse

Patrolmouse's prediction of a gear-up landing in a P-3 came true earlier this year. We can't help but wonder if a warning horn would not be overridden as was the "wheels" light in the incident mentioned. There will never be a substitute for an alert crew!

How Fuelish

AN A-6 arrived at NAS North East on a Friday night. Saturday the aircraft was refueled. When the aircrew arrived for a Sunday takeoff, the T-line personnel took fuel samples in accordance with OPNAVINST 4790.2A. The starboard wing sample checked 4.0. The port wing and centerline tank samples revealed gross contamination in the form of metal shavings up to one-eighth of an inch in size, paint flakes, and other unidentified material. Further samples were taken, all of which verified fuel contamination in the aircraft. It was recommended, with concurrence of the pilot, that the aircraft be downed and the discrepancy corrected. The aircrew departed with the pilot stating that he would contact his homebase. Because of the lack of trained personnel on the T-line, no maintenance was performed on the A-6.

The aircrew returned Tuesday prepared for a flight to homebase. The T-line personnel were told by one of the aircrew that contaminated fuel samples were no serious problem and it was a "normal occurrence." During preflight, a running fuel leak in the starboard wing was discovered. The source of the leak could not be determined, but the fuel was found to be leaking from a sealed bulkhead and out through a vent hole. It was recommended to the pilot that the new discrepancy should be corrected before further flight. Both discrepancies were noted on OPNAV 3760.2s; the pilot certified the aircraft "safe for flight" and then boomed off for homeplate. A quick check of the next day's newspaper showed no reports of an A-6 falling out of the sky, so it is assumed that the aircrew made the flight back home safely.

Get-home-itis has long been recognized as a potential accident waiting to happen. In this instance, i.e., launching with known contaminated fuel and a running fuel leak of unknown origin, the aircrew took an aircraft that normally would not be flown. OPNAVINST 4790.2A, Volume II, Chapter 7, para 707c. (2) (b)3 states: "If relatively large quantities of water or foreign matter are noted (compared to a normal sample), or small amounts persist in the samples from one or more tank drains, the aircraft shall be grounded."

I question the mission requirement of flying this aircraft when the accident/incident potential in this case was so great.

Questionmouse

The transient line personnel did their jobs exactly right. The aircrew, on the other hand, should have pushed to get the required maintenance accomplished. They should never have flown this aircraft home! ◀

Flying doctors and other people with funny wings

RECENT safety surveys have highlighted the fact that many aviation commands are unsure of what to do with their assigned flight surgeons. Even worse, many flight surgeons are uncertain of their exact relationships to the squadrons. Some aviation personnel are totally unaware of the duties and functions, even the existence, of aviation physiologists and aviation medical safety officers.

In order to at least partially overcome the lack of knowledge about these *folks with funny wings*, we offer you the following three articles by a flight surgeon, an aviation medical safety officer, and an aviation physiologist. As you will clearly see, these people can help you if you're a boot aircrewman or a commanding officer. They can be of tremendous help in your safety and training programs and can add a new dimension in planning everyday squadron activity.

Your friendly flight surgeon

By CDR V. M. Voge, MC

WHEN asked "What do flight surgeons do?", the common response is, "They give 'up' and 'down' chits, do physical exams, and take care of our dependents." This, my dear readers, is only the tip of the responsibility iceberg!

Your flight surgeon has received specialized training to be a multifaceted, all-knowing, all-seeing asset to your command structure who would be roughly equivalent to an industrial physician and industrial hygienist in the outside world. He (or she) should be involved in every facet of your squadron life, not only because he is attached to you in many cases, but because he has specialized training that allows him to: (a) see trouble spots before they develop, (b) help develop squadron policy, and (c) work closely with various key figures in your squadron, notably and especially the safety officer, but also the ops, schedules, NATOPS, and maintenance officers.

"OK," you ask, "what does my all-knowing, all-seeing superman [or woman] do?" In order to keep this article as short and sweet as possible, we're just going to enumerate the **documented** responsibilities of flight surgeons that are checked during our safety survey visits. This is by *no* means a complete and comprehensive listing. A flight surgeon should:

- Be known to all aeronautically designated personnel.
- Spend enough time in the squadron area to: (a) be available to all personnel for consultation on aeromedical safety, physical fitness, etc; (b) become personally familiar with all flightcrew personnel.
- Attend most all pilots/officers meetings (APMs/AOMs) and safety standdowns.
- Meet with department head safety councils, safety and mishap boards.
- Give scheduled lectures on first aid, aviation physiology and psychology, biomedical aspects of survival equipment, etc.
- Have an input to station/squadron safety programs.
- Participate in the mishap prevention program.
- Ensure that aeronautically designated personnel feel that the medical services provided are adequate.

- Ensure that all sick call personnel, dentists, and non-aviation medical officers are aware of the special requirements of flightcrew personnel.
- Ensure that the squadron/station premishap plan clearly sets forth medical personnel's responsibilities in the event of an aircraft mishap, and be thoroughly familiar with that plan.
- Participate in all aviation mishap boards.
- Be aware of his/her responsibilities once he/she arrives at the scene of an aircraft mishap.
- Ensure that there are well stocked first aid kits in the squadron area.
- Ensure that eyewash stations are available and in convenient locations.
- Ensure that the hearing conservation program is well implemented and working.
- Work with the squadron to develop a good obesity control program, physical fitness programs, and alcohol and drug abuse programs.
- Have a direct line to the CO.
- Be notified of *all* aircraft mishaps.
- Be consulted in regard to aeromedical safety aspects of slow or fast paced ops, crew rest and fitness, off-duty activities, crew alert time, etc.
- Be consulted in regard to human factors in maintenance and quality control.
- Be familiar with the aircraft, the mission, and the equipment of his/her unit.
- Be indoctrinated in available maintenance and operational flight trainers utilized by the personnel of the assigned squadron.
- Keep the senior medical officer informed of the aeromedical problems and safety matters of his/her unit.
- Ensure that physiological training, swim qualifications, and physical exams are updated periodically.
- Ensure that the command is aware of the physical status of its personnel (especially "up" and "down" status).
- Participate in safety/survival exercises.
- Participate in health maintenance and prevention program monitoring.
- Participate in predeployment/preexercise briefings.
- Help establish liaison with local authorities to facilitate the handling of casualties if a mishap were to occur either on or off base.
- Ensure that hospital corpsmen are adequately trained in the handling of crash and rescue missions and in the emergency treatment of crash victims (he performs this task with the help of the local medical department).
- Ensure that emergency vehicles are well stocked and in working order (he performs this task with the help of the local medical department).
- Ensure that his/her flight time is commensurate with the mission of unit to which assigned.

Had enough? Impressed? Well, as stated, this is not a complete listing. You can see that your flight surgeon has "superman/woman" responsibilities to your unit. Now that you are aware of them, why don't you help him/her accomplish these duties and responsibilities.

The aeromedical safety officer

By LT C. L. Anderson, MSC

"AVIATION medicine is a job for dedicated and trained professionals!" This premise, held over the years, has been best demonstrated in the fleet by the naval flight surgeon. In the purest sense of the word, the flight surgeon was seen not only as the duty medical specialist who provided for aircrews, but frequently he was the family physician who took care of the crew's family. With the advent of the all-volunteer Navy, we saw a progressive reduction in physicians in general and flight surgeons in particular. The concept of the "squadron flight surgeon" became diluted by the need for one flight surgeon to have responsibility for two, three, or even four squadrons. It was clear that, as the numbers of flight surgeons were spread thinner, bold new steps would be required to maintain the high standards essential in the aeromedical safety field and aircraft mishap investigation.

In response to the clear and present needs within the aviation fleet, the Bureau of Medicine and Surgery established the Aeromedical Safety Officer (AMSO) Program in 1976. With this initiative, a number of flight surgeons, aviation physiologists, and aerospace experimental psychologists were identified and assigned billets in Navy and Marine Corps units to specifically ensure professional continuation of aeromedical support to operational units. These select individuals were given no hospital or dispensary duties, as had always been the case with the Mark I, Mod 0 flight surgeon. Their sole mission

was directed toward a rapid response in providing aeromedical consultation and advice to operational squadrons and wings concerning matters of safety (dealing specifically with education, training, and aircraft mishap investigation). The primary goal was in prevention of accidents, but once an accident had occurred, it was incumbent upon them to assist in determining the cause in order to prevent similar mishaps.

To prepare for their task, only experienced personnel were chosen, and they completed the Aviation Safety Officer's Course at Monterey, CA before assuming their billets. The training has now been expanded so that some AMSOs are also graduates of the Crash Survival Investigator's School at Arizona State University, Tempe, Arizona. Having completed their training, they were assigned under the administrative control of a Naval Regional Medical Center (NRMC) facility and under the operational control of such major line activities as COMNAVAIRLANT, COMNAVAIRPAC, CNATRA, 2nd MAW, etc. (See Table 1.) The mission, as delineated by BUMED, was

Table 1

Location & Autovon Number	Psysiology	H_2O Survival	AMSO
Norfolk, VA 690-3083	X	X	X
Brunswick, ME 476-2164	X	X	X
Beaufort, SC 630-1500	X	X	X
Cherry Point, NC 582-3943	X	X	X
Cecil Field, FL 942-2532	X	X	X
PAX River, MD 356-3945	X		X
Pensacola, FL 922-2741	X		
Pensacola, FL 922-2305			X
Whiting Field, FL 868-7456			X
Meridian, MS 446-2315			X
Corpus Christi, TX 861-3940	X	X	
Beeville, TX 861-1110			X
1st MAW, Kadena AFB, Japan			X
Miramar, CA 959-2101	X	X	X
El Toro, CA 952-3112	X	X	X
Barbers Point, HI 430-0111	X	X	X
Moffett Field, CA 462-5021			X
Whidbey Island, WA 820-2304	X	X	X
Lemoore, CA 949-3568	X	X	X
Pt. Mugu, CA 351-8304	X	X	
China Lake, CA 245-2135	X		
NAVSAFECEN	X		X

wide and varied. It called for close liaison with local aviation safety officers, squadron lecture presentations, assistance with aircraft mishap investigations, monitoring the usage and problems associated with aviation life support systems, and providing input for appropriate changes in all publications dealing with aviation safety (NATOPS, NAVAIR, OPNAV, MANMED, etc.). They were to be an interface point between the operational line communities and medical units of the Navy. The bottom line, however, was **prevention of accidents and personnel injuries**. In this regard, the AMSOs' mandate was, and remains, virtually unlimited with respect to advancing aeromedical safety.

The initial plan and system has been carried out and is progressively being incorporated into vast new areas of fleet utilization. The basic structure of the AMSO Program 1980 comes through the TYCOM level where COMNAVAIRLANT and COMNAVAIRPAC have a nucleus team of three individual aeromedical specialists.

The flight surgeon member is, by design, one with fleet experience and acts to head the team. The aviation physiologist member provides valuable expertise in all facets of aviation life support equipment and egress systems. The aerospace experimental psychologist, whose knowledge of the dynamics of human factors is extensive, has added a new and broader dimension to mishap investigation and prevention programs on a squadron level.

On the TYCOM level, the AMSOs work in concert with the Force Medical and Force Safety Officers to assist respective squadron/wing safety officers. A vital and progressive liaison with the NAVSAFECEN Aeromedical Division has been established and provides pertinent updates on accident trends and personal feedback to flight surgeons with regard to identifying changing needs within the line community. Each Medical Officer's Report (MOR) from aircraft mishaps is reviewed by the TYCOM and NAVSAFECEN, with written comments provided to the originating flight surgeon. This has resulted in steady improvement in the quality of MORs.

The vast majority of AMSOs, however, remain the aviation physiologists who have been the backbone of the program. They represent a critical interface and extension of not only the local flight surgeon but the Navy's entire health care delivery system. The number of AMSOs has grown in 1980 to a total of four flight surgeons, 19 aviation physiologists, and two aerospace experimental psychologists. To ensure continued manning and improvement in the program, an AMSO Training Model Manager is planned as an expansion of the overall training at the Naval Aerospace Medical Institute (NAMI), Pensacola, Florida.

Somewhere near you is an AMSO who is available to assist your squadron, wing, or air group. At each of these operational levels – and only a few have been mentioned – there are professionally trained AMSOs who are prepared to provide yet another dimension to aviation safety by applying the concept of prevention through preparedness. Contact your local AMSO. Request and utilize his unique talents.

The role of the aviation physiologist

By LT W. L. Little, MSC

FOR the first 4 years of my naval career, I routinely heard the statement, "Hey Doc, I didn't know they made flight surgeon ensigns/jgs!" Once I made lieutenant, it was then

I AM THEM... WHICH ONE OF ME WOULD YOU LIKE TO SEE?

naturally assumed that I was a boot flight surgeon. There is a tremendous overlap in our disciplines, but there are also great differences between flight surgeons and physiologists. This article will attempt to set the record straight.

Starting with a close look at the collar devices, the Medical Corps (flight surgeon) has a gold oak leaf (without stem) with a silver acorn on the leaf. The Medical Service Corps (physiologist) has a leaf with a stem, but without the acorn. On a more serious note, physiologists are not M.D.s. Most have B.S. degrees in a life science; about half have an M.S. or Ph.D. The Medical Service Corps (1,800 officers at the present time) are administrators, and the other 50 percent are subdivided into about 18 allied science disciplines (podiatrists, optometrists, pharmacists, psychologists, occupational health specialists, etc.). There are presently about 60 aviation physiologists in the Navy. About two-thirds of them serve at the Aviation Physiology Training Units and Water Survival Training sites throughout the Navy and Marine Corps. The rest fill staff jobs and Aeromedical Safety Officer (AMSO) billets.

Now for the more relevant stuff! What can and should your friendly physiologist be doing for you?! I will address my comments mainly to the training unit services (the AMSO program has already been discussed). However, your AMSO can also provide almost all of these services, depending on his/her location.

The major role of a physiologist at a training unit is to provide physiology, vision, ejection seat, survival and oxygen equipment, and H_2O survival training (at most locations) to aircrews on an initial and a refresher basis. We are, however, routinely asked, "What else can you do for me, Doc?" Tables 2 and 3 are provided so that you have ready access to a list of available services should you require them. Note the training unit and AMSO nearest you, give them a call and introduce yourself. At your next AOM/safety standdown, we will be ready to help you.

In summary, please call upon your flight surgeon, AMSO, or physiologist for assistance whenever you have any aeromedical/safety problems. As you know, no one can be an expert in every area. Most of us would agree with you on that point! But we are, in general, "Jacks of all trades." We can either help you or put you in touch with someone who can. And that's an asset! The aeromedical team doesn't exist to service and build empires, it exists solely to serve you guys in the fleet. ◄

Table 2

General Aeromedical Services Available

Most physiologists are able and more than willing to come to your squadron and discuss at least the following topics:

- Exercise physiology and nutrition
- Hypothermia (water or land)
- Heat stress/desert survival
- Yearly ejection seat briefs
- Life support equipment problems (fitting, for example)
- Parachuting techniques
- Aircrew Systems Changes that have come into the fleet
- New equipment coming into system
- Psychology (lifestyle changes, i.e., the care and feeding of accident prone individuals)
- Decompression sickness
- "Gas" problems (ear, sinus, etc.)
- Hypoxia
- Hyperventilation
- Alcohol
- Self-medication
- Aeromedical aspects of midair collisions
- Areas of environmental safety (noise, radiation, toxicology, etc.)

Table 3

Aeromedical Topics Related to the Area of Water Survival

- General swimming strokes
- Drownproofing techniques (i.e., HELP, HUDDLE, floating, etc.)
- Hypothermia (water)
- Psychology of survival
- RSSK utilization and problems with same
- Parachute drag and entanglement
- Underwater breathing problems
- Raft utilization (and boarding)
- Underwater egress from aircraft
- Any other special type of egress problems

The Pethree Parable

or "How I learned to quit carousing and revere the Spotan"

By LCDR R. B. Kidd, USNR-R
VP-62

MANY eons ago, across the great Gulf, a land of remarkable wealth and sophistication stood at the pinnacle of world civilization. This land became known as the Kingdom of Prophecy, for events which transpired there were said to be repeated in future times and places with striking regularity.

Although its citizens abhorred conflict, the kingdom maintained a part-time self-defense force to protect the land and people from envious, more bellicose neighbors. Because of its acknowledged superiority in battle, the force was seldom challenged; thus, its primary activity amounted to periodic training efforts – usually conducted on weekends – to maintain an acceptable state of readiness.

Richlan, monarch and spiritual leader of the kingdom who was said to possess certain remarkable powers, placed great emphasis on the readiness of his forces, particularly on the proper and safe utilization of their equipment. (Verily, many of his Weekend Warriors thought of him as a stickler.)

The kingdom's forces included infantry, cavalry, and the like, but Richlan's pride was his long-range patrol squadron, a cadre of the best-trained, best-equipped warriors in the land. Operating a fleet of nine sleek craft called *pethrees*, the squadron was capable of performing in any waters of the known world, seeking out and destroying enemy submersibles which could threaten the kingdom.

The *pethrees* were the scourge of the high seas, their four great oars and auxiliary power sail providing unheard of motive force, their crews able to perform their assignments in the worst of battle environs. In fact, most who served in the patrol squadron noted how much easier their jobs had become since Richlan had decreed that they should have the awesome *pethrees* instead of their aging and much less effective predecessors, the twin-oared *petwos*. By comparison, the *pethree* was a breeze to operate. At their command, the squadron members rejoiced, for now they surely constituted an elite corps.

But alas, all was not well in the kingdom. Richlan sensed one day that perhaps his patrol minions were becoming a bit complacent about their newfound sophistication. He received reports of *pethrees* helplessly floundering in open water as oarsmen fore and aft attempted to propel the vessel in opposite directions and of unauthorized practice maneuvers by crews intent on "seeing what this baby can really do."

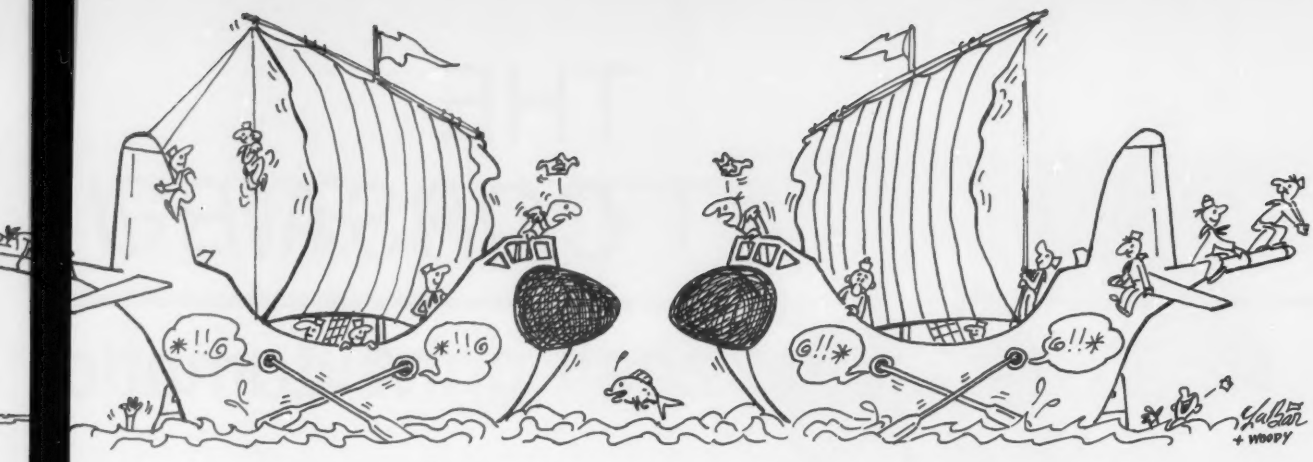
"Methinks I shall test their true mettle," Richlan declared. Turning to Sambut, royal keeper of the Spotan, book of sacred law regarding the proper utilization of the kingdom's military assets, the ruler decreed, "You will conduct an inspection tour of my patrol squadron. You will examine the crews' knowledge and assess the degree of their compliance with the Spotan. We cannot tolerate halfhearted standardization in the kingdom, for it will surely weaken our capability and our resolve."

Sambut sighed to himself, for he knew that the "elite corps" had something less than the highest regard for the Spotan and the philosophy behind it. When he advised the squadron personnel that he would be evaluating their operating procedures and practices, Sambut was assured that they would achieve their "usual outstanding performance." "That," Sambut remarked to himself, "is what I'm afraid of."

The elite corps was seen to be quite busy in the days leading up to Sambut's evaluation . . . busy racing their *pethrees* in shallow waters, busy studying the oars' ability to withstand intentional high-velocity collisions, and busy emulating the social habits of the kingdom's best known hedonists . . . busy doing everything but consulting the Spotan.

The day Sambut arrived for his evaluation of the squadron was recorded in the kingdom's Book of History as the *Day of the Great Debacle.* The elite corps' results were worse than Sambut had feared. Crewmembers, almost without exception, showed infinitesimal familiarity with the writings of the Spotan. And the crew Sambut pieced together from the few who managed to pass his examinations scared him so badly that he jumped overboard and swam ashore.

When Richlan learned of the failure of his pride and joy, he raged, he fumed, and he caused a pall to be cast over the entire squadron: low-hanging black clouds became omnipresent over all equipment and personnel; normal activities ceased;



operations were curtailed; key officers were rumored headed for reassignment to the Outer Reaches. In short, the elite corps was in disgrace.

The effect of Richlan's wrath was immediate . . . and devastating. The once-proud *pethree* warriors found themselves virtually unable to function. Morale, always at a peak in times past, sank to zero. Word of the squadron's plight reached the attentive ears of commanders in neighboring nations; increased military maneuvers near the kingdom's border were detected.

At length, Sambut, loyal keeper of the Spotan, decided he'd seen enough; he implored Richlan to give the *pethree* warriors another chance. Richlan agreed, but added, "Look at how they mope around. I suspect they'll be loath to even accept the evaluation, much less pass it. Nevertheless, I want you to give them no quarter; if anything, this evaluation must be more stringent than the first."

As the monarch had predicted, Sambut was able to arouse absolutely no interest among the warriors for another evaluation. His protestations fell on deaf ears. Their disgrace was complete and functionally debilitating.

But Sambut did not become Keeper of the Spotan because his mother raised stupid children. As he pondered the kingdom's dismal plight, Sambut suddenly became conscious of an idea forming in his mind, and it grew and grew and ultimately exploded into a full-blown plan, complete with four-color graphics, quadraphonic soundtrack, and oh-so-minute detail. Sambut went to work like a man possessed.

The next day, the downcast warriors were invited to a grand drama in the kingdom's finest amphitheater. Lacking the will to refuse, they attended and thereupon witnessed the presentation of a tragic comedy about a proud band of heroes from a far off land who, after receiving many accolades and much public adulation, gradually became convinced of their own invincibility. The heroes began to forsake their training and lose their resolve and, ultimately, were routed by a band of young and hungry marauders from a nearby nation.

As the curtain came down, Sambut appeared on stage and held up a gigantic mirror so the assembled warriors could see only their own reflections. "Sound familiar?" was all he had to say.

The next day brought unaccustomed activity to the now-subdued squadron spaces. Long-ignored copies of the Spotan were retrieved from once-forgotten hiding places. Pethree experts from the builder's plant were summoned, and Sambut spent every waking hour researching questions no one thought to ask before.

The preparations continued. With renewed self-esteem, the warriors scoured the Spotan seeking more knowledge, more personal readiness. The day Sambut came to conduct his second evaluation, he might as well have stayed home. Rejuvenated by their own resolve, the warriors were once again young and hungry. The day of evaluation was recorded in the Book of History as the *Day of Reawakening* in the kingdom. The warriors turned in record performances in all phases of the evaluation, then launched their *pethrees* to wreak total havoc on the kingdom's encroaching enemies in celebration of their reemergence as the elite corps.

Upon their triumphant return, Richlan, understandably elated, summoned the warriors and the superior minds of the kingdom to a great council. He decreed that the pall of disgrace should be lifted and that a great medallion be cast and mounted where all could see, commemorating the great reawakening that they had witnessed that day.

Then, when the cheers had quieted, Richlan's mood turned serious, and he ordered that a smaller medallion also be cast and mounted just below the other, where all could see, commemorating the *Day of the Great Debacle* . . ."lest anyone forget."

And so it was that the elite *pethree* warriors regained their morale and their self-respect, along with vastly enhanced operating efficiency and readiness. And as Sambut recorded the events in the Book of History, he added a final note for the following generations:
"Remember," he wrote, "this is the Kingdom of Prophecy."

THE *CORSAIR II*

Automatic

By LCDR F. D. Ameel
NAVPRO Dallas

YOU'RE a *Corsair* driver engaged in one-versus-one DCM (Defensive Combat Maneuvering) training and are slowly gaining the advantage on your hard-maneuvering opponent. As he tightens his nose-low turn, you increase the G and concentrate on working inside his turn, gradually pulling lead for a gun solution. The rapidly increasing airframe buffet has not registered its bone-jarring warning as you concentrate on tracking your target. Then it happens – the nose of your A-7 slices opposite to your direction of turn, the world turns inside out, and before you can catch your breath, you have departed from controlled flight. Immediately recalling your departure training, the memory aid/procedural acronym "AHAA" flashes through your mind. As you check the AFCS off, let loose of all controls, and monitor angle-of-attack (AOA), airspeed, and altitude, you admonish yourself for not watching your AOA more closely. Later, following the debrief, you grab your coffee cup, find a quiet corner in the readyroom, and open the NATOPS manual to the section describing the high angle-of-attack/departure characteristics of the A-7.

To capsulize the physical factors which affect the high AOA behavior of the *Corsair II*, it should be noted that degraded directional stability in the 23-27 unit AOA region is the most critical. Weak dihedral effect (roll due to yaw) near stall AOA, combined with aileron-induced adverse yaw (yaw due to roll) results in directional divergence (loss of directional control). The ensuing departure from controlled flight is characterized by yaw rates exceeding 125 degrees/second and accompanying high roll rates. This poststall gyration (PSG) is disorienting, and the associated high lateral acceleration can cause inadvertent pro-spin aileron inputs if the pilot continues to hold the stick.

Since June 1970, 15 A-7Es have been lost in stall/departure accidents, resulting in eight fatalities. A review of these mishaps reveals that pilots of varying experience levels have fallen victim to this category of accident (see Fig. 1). The statistics show a range from 35 to 836 hours in model for

GETS A LIFT

maneuvering flaps for the A-7E

those involved. Closely supervised departure training conducted by both A-7 Fleet Training Squadrons over the past few years has better prepared the replacement fleet A-7 pilot to handle this most demanding flight regime. This training without a doubt has prevented many such mishaps.

During a 3-year period beginning in 1972, Vought Corporation (then Vought Systems Division of the LTV Corporation) developed an Automatic Maneuvering Flap (AMF) system for the *Corsair II*. Initially, the contractor was attempting to solve the fleet problem of damage to leading edge flap fairings caused by inadvertent flap actuation in excess of limit airspeeds. Both wind tunnel investigations and flight test results brought to light that significant improvements in buffet onset, G available, and stall/departure characteristics were possible through incorporation of such a system.

In March of 1975, a joint USN/USAF Military Pilot Evaluation (MPE) was conducted to define the high angle-of-attack and maneuvering characteristics of a prototype AMF system installed in an A-7E. The test team concluded that the major benefit to be accrued from the system was the capability to fly the A-7 at optimum performance (20-22

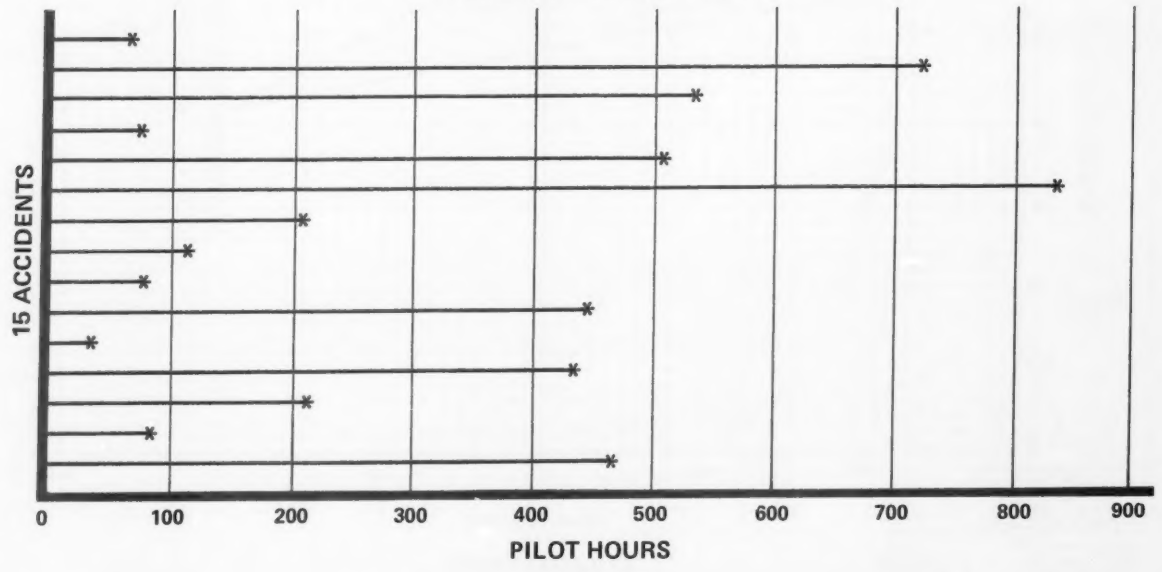


Fig. 1

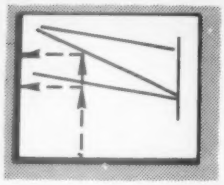
units AOA) in a milder buffet and with a larger AOA margin between this region and stall/departure.

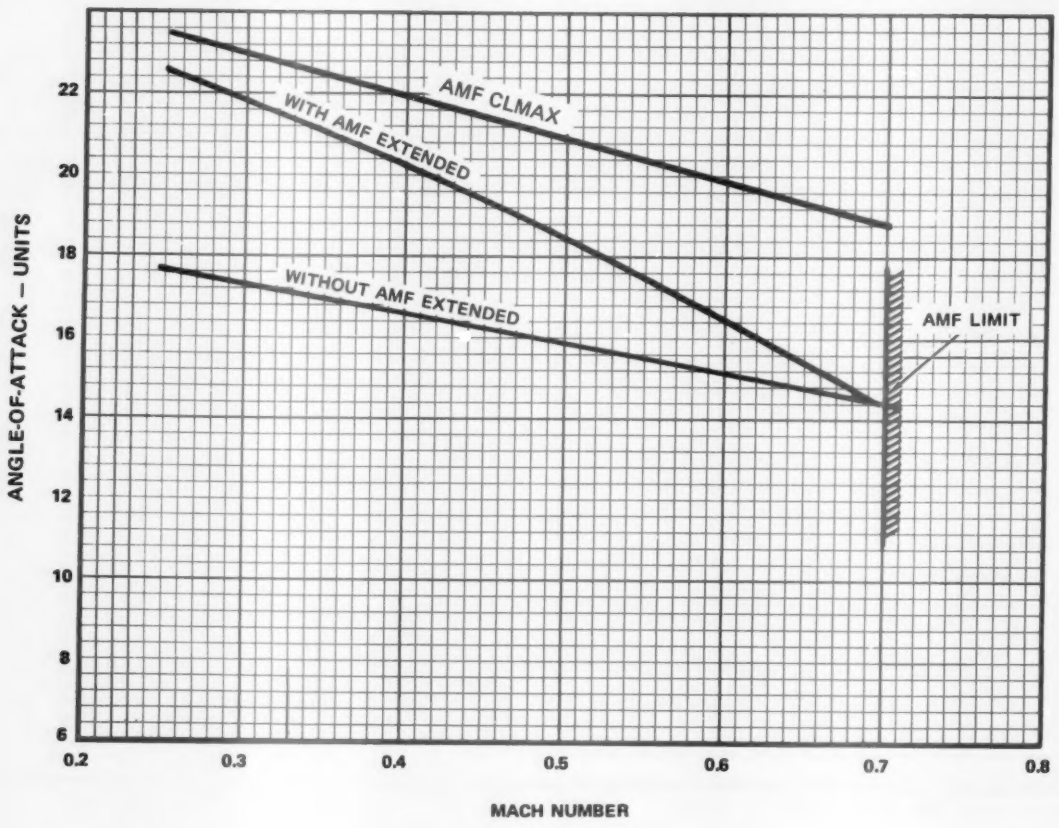
The AMF configuration, to be installed in the A-7E as ECP (Engineering Change Proposal) 511, consists primarily of the existing flap surfaces, a new AOA transducer, an Electronic Control Unit (ECU), and modifications to the AFCS Aileron-Rudder Interconnect (ARI) gain schedule and PC-2 hydraulic system. Upon extension, the AMF system utilizes full 26-degree leading edge flaps to delay buffet onset below 0.7 IMN while driving the trailing edge flaps to 15 degrees deflection, providing about a 35 percent increase in turn performance. The ECU receives inputs from AOA, airspeed/mach, leading/trailing edge flap position and up-and-locked conditions, flap handle, landing gear handle, and AMF switch positions. With the gear up, flap handle in ISO and AMF selected, flap extension occurs automatically at 14.5 units vane AOA if the airspeed is less than 325 KIAS or 0.7 IMN. When the angle-of-attack decreases to 10.5 units or airspeed exceeds 325 KIAS/0.7 IMN, the flaps automatically retract. Should the tactical situation dictate, the AMF system can be manually overridden while the flaps are extended. Depressing the nose gear steering button will cause the flaps

MODEL: A-7D
DATE: 1 MAY 1977
DATA BASIS: FLIGHT TEST

ENGINE: TF41-A1
FUEL: JP-4
FUEL DENSITY: 6.5 LB/US GAL

CONFIGURATION
6 PYLONS





A7 BUFFET ONSET

Fig. 2

to retract. Safety features incorporated into the ECU enable the pilot to monitor AMF system status through ADVISORY/CAUTION light indications while redundant overspeed sensors prevent flap structural limits from being exceeded.

The aforementioned flap deflection angles (26 degrees/15 degrees) were chosen to optimize *Corsair II* performance at low altitudes in the range of 275-300 KIAS. The majority of A-7 stall/departure accidents have historically taken place in the low end of the airspeed envelope. One of the less endearing flight characteristics of the A-7 is its rapid deceleration into this low-speed regime when maneuvered for any sustained period at 22-24 units AOA.

Both the MPE and Vought flight testing concluded that the delay in buffet onset with AMF extended, shown in Fig. 2, combined with a lateral wing oscillation unique to the AMF configuration, provided the pilot with a much improved indication of when he had entered the maximum performance AOA region of the aircraft. A reduction in adverse yaw throughout the flight envelope was also achieved, regardless of whether or not AMF was extended, through a 300 percent increase in maximum ARI gain. With AMF extended, the aerodynamic benefits of increased dihedral effect and improved directional stability yielded an approximate five-unit AOA increase in the departure-free maneuver envelope.

Departures experienced with AMF extended were practically unchanged with respect to initial yaw rate (nose slice); however, the magnitude of yaw/roll motion and lateral G during the poststall gyration was reduced and was much shorter in duration than in a non-AMF-equipped A-7. Recovery was easily completed by decreasing the AOA, rolling upright at termination of the PSG, and pulling to optimum AOA for dive recovery. Overall, the departure was less violent and disorienting. In addition, the AMF-equipped airplane did not exhibit the tendency to redepart following application of abrupt longitudinal/lateral recovery controls. Both 1G and accelerated departures required approximately 3000 feet for recovery as compared to 6000-8000 feet for the non-AMF *Corsair.*

Lest the preceding description of AMF be construed as a cure-all for the high AOA ills of the A-7, the flight envelope of the modified aircraft must still be adhered to. An AMF-equipped A-7D has been lost as the result of an accelerated departure with insufficient altitude for a recovery. While the AMF system provides added capabilities, it also has limitations which **must be heeded by the pilot.**

Since taking delivery of their first AMF-equipped A-7D in March 1979, Air National Guard units throughout the country have been most enthusiastic about the airplane's increased performance capability. At the time of this writing, a production AMF-equipped A-7E had undergone evaluation at NATC Patuxent River and was being flown at NWC China Lake. The last 16 A-7Es produced by Vought will have AMF incorporated in production. ECP-511 will be retrofitted to the remaining fleet aircraft by field modification teams at NAS Cecil/Lemoore and during a drive-in program at Vought.

As the A-7 enters its 13th year of fleet service, the safety aspects of the man/machine interface continue to be improved. The addition of the AMF system will allow the *Corsair II* to be flown to optimum performance with an added margin of safety, thereby improving the mission effectiveness of a combat tested delivery platform. ◄

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IFOs

DURING a 15-month period, over 1000 reported incidents of objects falling from aircraft have been reported in the naval aviation community. Objects such as canopies, tailcones, hatches, doors, fairings, and antennas seem to be the most predominant culprits. This staggering rate of nearly 70 incidents per month seems to be continuing at a steady rate. This is obviously excessive and must be reduced.

If there are deficiencies or shortcomings in aircraft hardware, identify them and get them corrected. Let those in the chain of command know if your particular community is affected by a particular problem. In the meantime, keep the pressure on for exacting quality assurance, thorough preflight/postflight inspections, and rigorous inflight discipline. Do your part to reverse this alarming trend of IFOs (Identified Falling Objects).

air breaks

Zap. The pilot had landed at Metropolitan airport after a two-leg flight from NAS to Metro, with an intermediate stop along the way. The purpose was a passenger drop at both airports. The tower cleared the pilot via a long, circuitous route to the fixed-base operator's terminal to discharge his passenger.

As the pilot rounded a long line of parked aircraft, facing the terminal, he slowed and planned to stop and discharge his passenger about 100 yards from the terminal, in a clear, uncongested area. However, he saw a lineman directing him to come ahead toward the terminal, and he began taxiing slowly ahead.

The pilot was more concerned about the line of parked aircraft on his left than obstructions on his right. While ensuring clearance from one aircraft parked out of line, he felt his aircraft lurch right. He jumped on the binders and cut his engines. He had hit a concrete support post for the terminal entrance roof overhang. At no time did the lineman, or the civilian passenger sitting in the right seat, give any attention to the clearance to starboard.

Quite simply, the pilot failed to accurately judge wing clearance on the starboard side, and the lineman, on whom the pilot was depending, was still signaling come ahead even after the aircraft hit the post. Damage was slight.

The pilot placed unwarranted confidence in the lineman. He was used to naval linemen and wasn't aware that civilians do not assume any responsibility when directing aircraft. All pilots, particularly those who operate at civilian airports, must be especially vigilant in responding to signals by civilian ramp personnel. There was a bit of irony about the incident when a representative of the fixed-base operator commented to the pilot, "Don't worry. You weren't the first one by any means."

Beware of UFOs. Just after receiving instructions to descend from 9000 to 7000 feet, a U.S. commuter airliner on a flight from Washington National to Philadelphia International was forced to dive to avoid nine free-falling skydivers and the plane that dropped them! The incident occurred in the skies over northern Delaware. The crew reported that it had not been told of this "traffic" in the area, but a NOTAM had warned of skydiving in the vicinity. Skydiving is normally prohibited in an active airway; however, this was an exception. Fortunately, none of the crew, passengers, or the unsuspecting falling objects were injured.

This incident goes to show that the least expected can happen at any time, anywhere. Too often, pilots check only the NOTAMs for their destination and alternate, and overlook or neglect en route notices to airmen. To enhance the probability of a safe flight every time – check ALL NOTAMs along your route each time you fly. It's a crowded sky up there!

Adapted from
Flight Safety Foundation, Inc.

The above case involving commercial aviation is not a first, and probably not the last. Last year in the spring, an H-46 under radar ATC had just expended its load of six parachutists at 6500 feet. Shortly thereafter, the helo passed within several hundred feet of an opposite-direction T-39 that was slightly abeam and below him. The helicopter was notified of the T-39, but evasive action couldn't be taken because sighting and reflex action were almost simultaneous. Fortunately, a miss is as good as a mile in this case, but this one was too close for comfort! We agree – it's crowded up there. – Ed.

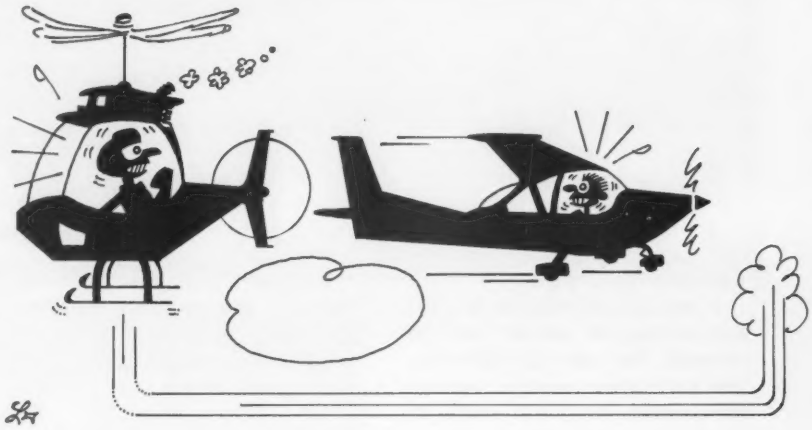
Caught Between the Rock and a Hard Place. Following hydraulic system and filter maintenance on an A-7, two maintenancemen were instructed by

their supervisor to reconnect the speedbrake actuator rod and reservice the hydraulic reservoir. The pin was inserted, connecting the speedbrake actuator rod to the speedbrake. One man then stated that he would lock-wire the ground maintenance selector valve and service the reservoir. After receiving a verbal OK from the man on the port side of the *Corsair*, thereby believing him to be clear of the speedbrake area, he lock-wired the valve and started the hydraulic test stand. This evolution caused the speedbrake to retract, crushing the other maintenanceman between the speedbrake and the aircraft fuselage. A third maintenanceman observed the situation and ordered the test stand secured. Unfortunately, this act was too late and the crushed sailor died as a result of this accident.

Maintenance actions of this nature really need close supervision. In this particular case, it was evidently lacking. Although there was communication between several members of the maintenance crew, there also was a definite misunderstanding of each other's actions. Had a thorough brief been conducted, and the instructions therein been carried out and supervised, this accident and others like it would be prevented.

Foto Finish. After completing a GCA, the *Skyhawk* pilot experienced jammed elevator and aileron controls during his missed approach. He declared an emergency and established a shallow climb through judicious use of power, trim, and rudder. Passing 500 feet, the photographer in the rear seat of the TA-4 stated that he had dropped his camera, and that it had become lodged between the seat and the stick. Unable to dislodge the camera, the pilot was able to set himself up for a modified approach to an off-duty runway. Once again, through timely and deft use of power, trim, and rudder, the pilot was able to successfully wrestle the jammed *Skyhawk* to rest on the runway. The camera eventually became dislodged just prior to touchdown.

This mishap could have been catastrophic had the pilot not remained calm, cool, and collected. It could have resulted in the loss of the aircraft and crew, plus extensive damage to property and lives below. Cockpit FOD can be as deadly as flight line/runway FOD. It's not needed or wanted in either place. Pilots that are required to carry "nonaviation" types around from time to time should always emphasize the importance of securing items listed as "trade" equipment. Items that are not considered "essential" should not be taken along.



Which Way?

Tower, Cessna 456, taxi for takeoff, request 36.
456, taxi Runway 18, altimeter 29.92, winds calm.
730, cleared to land on the numbers, Runway 18.
456, cleared present position for an intersection takeoff 18.

AFTER the last transmission, the Cessna pilot taxied out onto 18/36 at a point 4000 feet from the approach end of the runway where the helo was landing. The Cessna pilot turned south, and the controller assumed he was going to make a running takeoff.

While this was going on, another flying club aircraft called in with stuck flaps, full down, and was cleared to land on Runway 29. Meanwhile the pilot of Cessna 456, unobserved by the controller, did a quick 180 on the runway and *took off on 36.*

There was an immediate conflict as soon as the Cessna became airborne. The helo pilot saw a Cessna headed right at him, and the Cessna pilot saw many rotor blades in his face. They missed, by maybe 50 feet laterally, as the helo pilot took evasive action.

All this occurred on a quiet weekend in daylight VMC. As a result, the Cessna pilot was grounded, pending retraining and satisfactory completion of an exam in course rules and voice procedures. The controller's certification was suspended and a retraining program was set up for him.

A midair can ruin anyone's weekend. The Cessna pilot thought he heard what he had requested, and not what was actually transmitted. The controller saw the aircraft swing south on the duty, and his attention was diverted to another flying club aircraft with a problem. Nothing short of *full attention* is ever acceptable in this business.

PHANTOM BARRICADE

AN F-4 crew launched from the No. 2 catapult for a day intercept mission. As the aircraft left the bow, the catapult officer and Pri Fly saw the port main wheel fall off. The wingman joined and saw hydraulic fluid leaking from the port MLG wheelwell. It was decided to lower the gear while sufficient fuel remained to divert, if necessary. The gear were lowered and the wingman confirmed that the wheel and brake assembly were missing, but the strut and inner barrel were still on the aircraft.

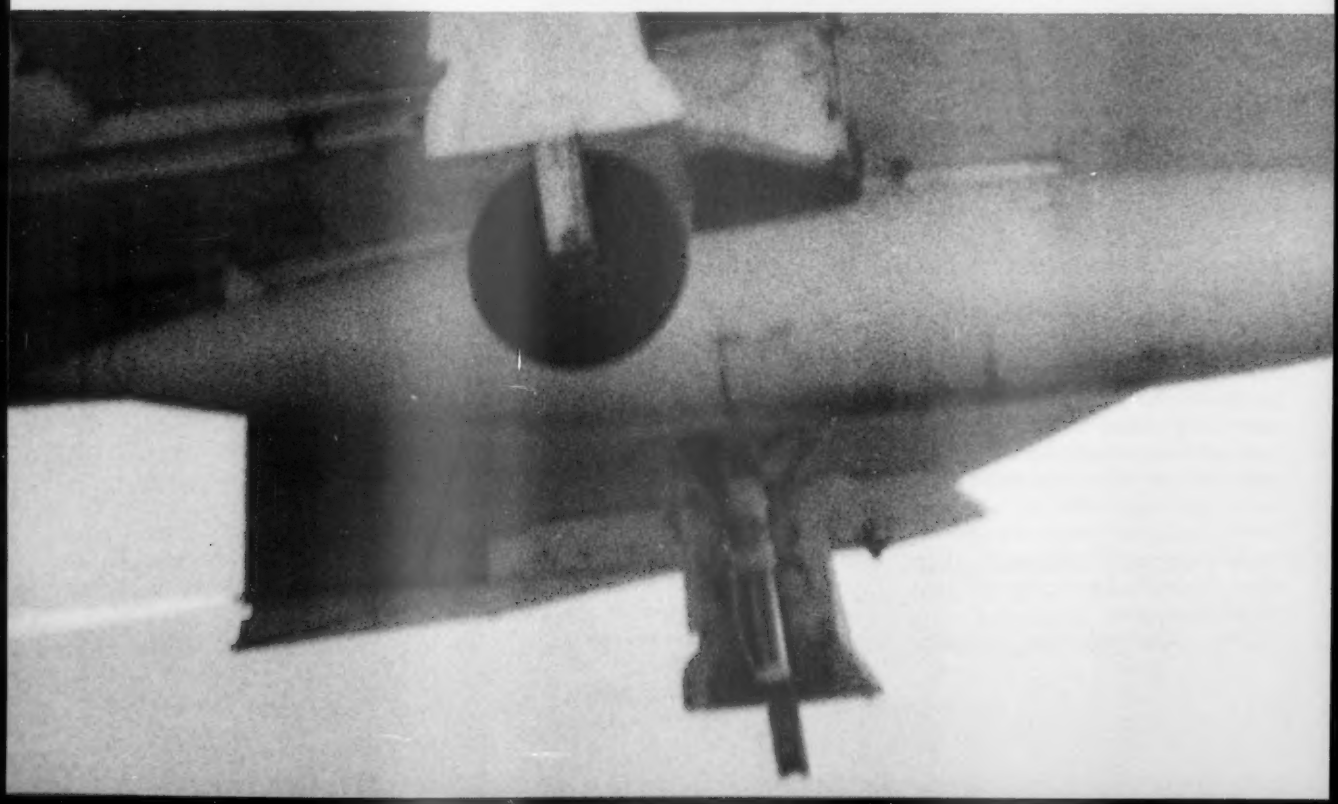
A decision was made not to divert but to put the aircraft into the barricade. The gear were left down, two AIM-9s were jettisoned, and fuel was dumped. The aircraft weight was 35,000 pounds when the pilot entered the pattern. A normal approach was flown and the aircraft landed 2 feet left of centerline. Engines were secured on touchdown.

As the F-4 crossed the barricade crossdeck pendant, the port stub buckled the No. 4 deck plate, cut the CDP, and the aircraft swerved violently 90 degrees left. The barricade CDP separated. The F-4 then swerved right and impacted the flight deck combing with the nose gear and port strut. This stopped the left drift. The aircraft continued to slide for a short distance and came to rest against the combing. The LSO noted: "OK barricade."

Previously, both axles had failed inspection due to pitting corrosion. The lower barrel assemblies were removed and reworked. They were ground, shot peened, and reinstalled. They had 107 landings after reinstallation. Later, the F-4 was downed for maintenance not related to the gear. The aircraft was then scheduled for flight upon completion of maintenance actions, after having been down for 22 days. The port main landing gear inner barrel failed at the axle fork radius immediately after the bridle release, resulting in the loss of the wheel and brake assembly.

Fractographic analysis confirmed that stress corrosion cracking was the primary cause of the failure. A major factor in the failure was the improper method used by the repair facility in sealing the axle fork radius. This procedure allowed water and salt to penetrate the paint and sealant and attack the metal.

A review of aircraft logs, axle inspection requirements, and maintenance procedures was conducted. Witnesses were interviewed and plat tapes were studied. It was decided in view of the evidence that the cause was material failure of the port MLG assembly. The majority of the damage to the aircraft was the result of the barricade arrestment.



MRC 124 was changed to require axle inspection after every 50 carrier landings. Also, the NATOPS Emergency Section decreed CDP removal prior to a barricade engagement with a stub mainmount.

The F-4 main landing gear axle has been improved with the incorporation of AYC 393. In addition, magnaflux and fluorescent penetrant inspections are required as follows: phase C inspection; hard landing conditional (part D); internal leaking/damaged strut; after 75 arrested landings (prior to AYC 393 only). —Ed.

SURVIVAL/POSTEJECTION PROCEDURES

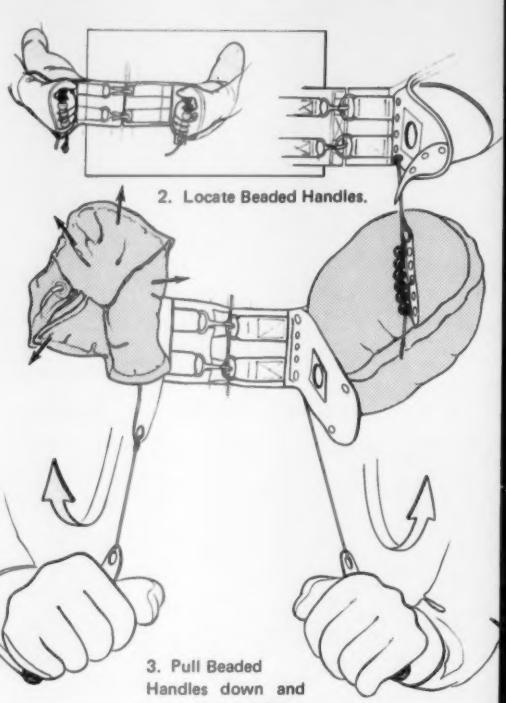
Integrated MA-2 Torso Harness with Rigid Seat Survival Kit – LPA Inflation and Liferaft Deployment Sequence A-6 and F-14 Configuration

By CDR Jack Greear, MSC, USN
APTU – Norfolk
NAVREGMEDCEN, Portsmouth, VA

THE following scenario describes step-by-step procedures for inflation of the Life Preserver Assembly (LPA) configured with beaded handles, the 35-gram CO_2 cylinder, and utilizing the SKU-2 (single handle) or RSSK-7 (dual handle) kit. The emergency egress situation is a below barostat, high-altitude ejection (over water) in which seat/man separation and parachute deployment have been accomplished automatically.

These techniques are being published in advance of NAVAIR-00-80T-101 for two important reasons: first, so they will get to the fleet as soon as possible; and second, so that the project manager may receive any possible feedback on these procedures before NAVAIR-00-80T-101 is finally printed. Please forward any comments to: Commanding Officer, Naval Regional Medical Center (Code APTU-230), Portsmouth, VA 23708.

1. Immediately following opening shock of parachute, check the condition of the parachute canopy. If no malfunctions have occurred, proceed to next step.



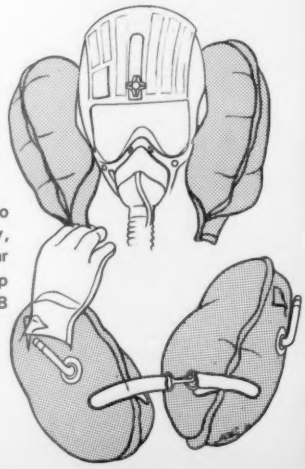
2. Locate Beaded Handles.

3. Pull Beaded Handles down and out to inflate LPA.

4. Remove chafing material (when required).

5. Snap LPA waist lobes together.

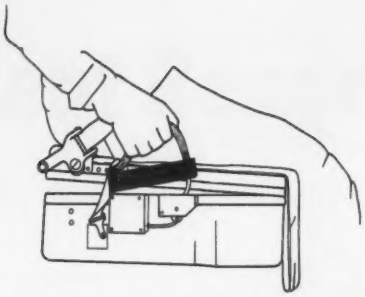
6. Squeeze LPA waist lobes together to help release Velcro on collar lobe, or



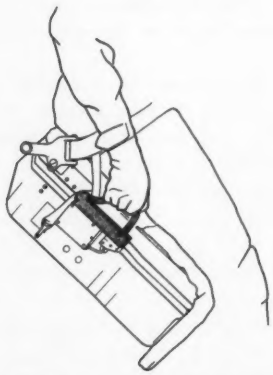
6A. Manually release Velcro on collar, if necessary, to achieve complete collar lobe inflation. (Go to step 7A for SKU-2 or step 7B for RSSK-7.)

SKU-2

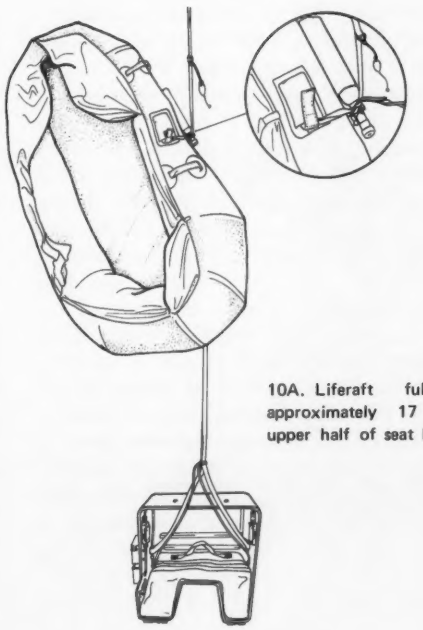
7A. Aircrewman under canopy with LPA inflated preparing to activate raft release handle.



9A. Firmly pull up on the raft release handle until free of kit.



8A. With right hand, locate and grasp the single raft release handle on the right side of the SKU-2.



10A. Liferaft fully inflated approximately 17 feet below upper half of seat kit container.

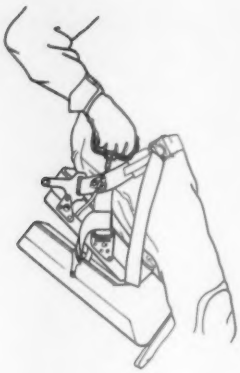
NATOPS evaluator for A-6 LSE is PR1 H. L. Drake

NATOPS evaluator for F-14 LSE is PR1 R. A. Kelley

Continued

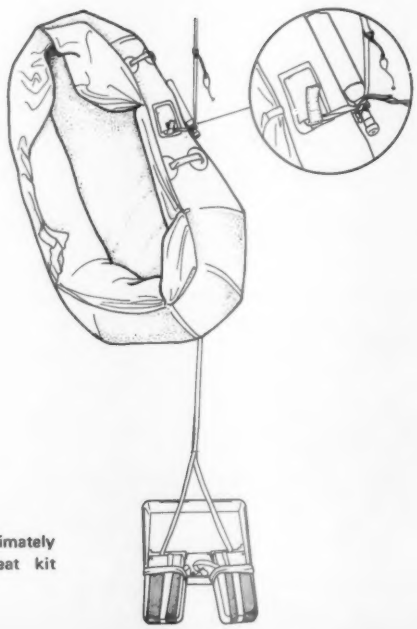
RSSK-7

7B. Aircrewman under canopy with LPA inflated preparing to activate raft release handle.



9B. Firmly pull up on either handle until cable has traveled its full distance and kit has released.

8B. Locate and grasp either raft release handle, located on each side of kit (RSSK-7).



10B. Liferaft fully inflated approximately 17 feet below upper half of seat kit container.

Aircraft Incident Reporting

Tell it like it is-unless it's embarrassing!

By LCDR Richard P. Shipman
VC-12

THE following scene probably has been played at one time or another in every squadron in the Navy. Its locale is the CO's office, and the players are the safety officer, the maintenance officer, and the commanding officer.

Safety Officer: "Skipper, we really need to go out with this incident report because it identifies a problem that could lead to an accident. I know it doesn't look too good for the squadron or the maintenance department, but I'd rather we suffer a little embarrassment than be guilty of failing to prevent an accident."

Maintenance Officer: "I have to disagree. If we let this incident out, we'll be putting ourselves on report. All we'll be doing is airing our dirty laundry and making a laughing stock of ourselves in front of the whole Navy. Besides, since no damage or injury occurred, we're not required to submit the report."

How this discussion is resolved will depend on the personality of the individuals involved, their debating techniques and, most significantly, the CO's attitude about safety and his dedication to the safety program. Unfortunately, all too often the decision is made not to submit the incident report for fear of making the squadron look bad. As a result, much valuable safety information is lost as lessons learned from the costly school of experience are kept in-house.

The instruction governing mishap reporting, OPNAVINST 3750.6, is reasonably specific about what constitutes a required incident report. It's probably safe to say that most squadrons report most incidents that come under the required category. There are other reportable incidents, however, that come under the optional category – those "incidents that result in no damage or injury but which constitute a definite accident potential, a report of which would benefit the Naval Aviation Safety Program." This is the category of incident that may very well offer the greatest value in terms of passing along safety information. Unfortunately, it is also the category that is most likely to be left unreported since it is not required and may reflect unfavorably on the squadron.

The logical solution to encourage voluntary incident reporting would seem to be to develop a system that avoids subjecting the squadron to public ridicule. The concept of anonymous incident reports is not new; they have been around the Navy for years in the form of "Anymouse" submissions. But these forms are informal, individual contributions that have no avenue for followup action or systematic fleetwide distribution. Why not modify the formal incident report system to allow a provision for anonymity?

The way such a system might work would be to allow the squadron to decide which reports it sends via the normal procedures and which reports it wants to remain unidentified. On the latter incidents, the squadron would submit a single copy of the report to the Naval Safety Center with a special incident code indicating the need for anonymity. The Safety Center would then sanitize the report, removing squadron and aircrew identification, and readdress the message to the appropriate commands. All the information would still be available for Safety Center analysis and aircrew mishap histories.

Constructive and candid incident reporting is a valuable and important fundamental of the Navy's accident prevention program. It is not totally realistic, though, to expect the desired degree of honesty and completeness in incident reporting when the incident reports are subjected to scrutiny by both peers and superiors. At the limited cost of some increased administrative work on the part of the Safety Center, the Navy can have a system that "really tells it like it is" and passes on important lessons learned and experiences gained – before they cause an accident.

"The road to damaged aircraft and injured people is paved with the 'can-do' spirit."

Let's do away with avi

By LCDR James E. Novitzki
Naval Postgraduate School

HERESY, you say? How can you say that in a safety magazine? I say it precisely because this is a safety magazine. Although no one likes to think about it, the title expresses the feelings of many commanding officers, department heads, chief petty officers, and other personnel in the Navy. First of all, almost none of them object to safety as an idea; it is like apple pie and motherhood. What they do object to are safety officers and at least part of many aviation safety programs. What are some of their objections, then? Let's list a few: the programs do no good; they make extra work; they keep people from getting the job done; they take too much time; they have become ends in themselves; they're not needed. Take a couple of minutes and look at each of these objections and see if any apply to you and your squadron.

Objection 1: "Safety officers and safety programs do no good." If one only looks at accident statistics for the last 3-4 years, one could get that idea. The accident rate has not decreased significantly in the last few years, but before we write off the safety effort as useless, consider first what we have achieved. Since the implementation of safety programs as such, the Navy accident rate has been reduced by more than a factor of 10. In 1952, the Navy accident rate was almost 6.0 per 10,000 flight-hours, with a total of 2215 major accidents for the year. The Weekly Summary contained an average of 30 accident briefs per week. If we had that rate today, we could eliminate the entire Navy and Marine Air Forces in a little more than a year. Today the accident rate is about .65 per 10,000 hours, largely due to the efforts of dedicated safety officers and safety programs that produced NATOPS, OPNAVINST 4790, fleet replacement squadrons, and the Naval Safety Center.

The standard rebuttal to this is: the airplanes have gotten better, there are more safety devices and backup systems, and with or without a safety program, the accident rate would have dropped. It is true there have been improvements, but aircraft are still not failsafe. Eighty percent of aircraft accidents can be traced to human error. Consider this fact: light aircraft have been refined to the point that they are little more difficult to fly than the family car is to drive. There is no mandatory safety effort; most safety concerns and responsibilities which are controlled or monitored in the Navy are left up to the individual in civil aviation. Yet, in 1979 the civil accident rate converted to 10,000 hours was approximately 20. The procedures and checks in safety programs do make a difference, and consistent effort can reduce the accident rate.

Objection 2: "The safety program is extra work." In some squadrons this may be a valid complaint, but things do not necessarily have to be this way. Safety does not have to be, and in fact shouldn't be, an add-on program. Every job we do in the Navy has a right way and a wrong way to be performed. Sometimes there is also an expedient, Navy way, but even in that case, it is still a method or procedure that performs what is desired correctly and efficiently without injury to the person performing the job and without producing shoddy or incomplete work that could kill or injure those who must subsequently use the equipment. In fact, the safe way is always the right way to perform a job. Every training session, as it mentions the proper way to perform a job, the dangers associated with the gear, etc. is, in reality, a safety lecture. There is no need to add additional lectures or training; merely emphasize the inherent characteristics of the jobs. This includes flight safety as well.

NATOPS restrictions are there to ensure that the mission is accomplished and that there will be no injury or damage to the aircraft or crew. There is no need for a separate safety lecture on bombs, etc. The lectures describing delivery techniques, loading, etc. should cover the various safety aspects of each operation. It's the professional and the right way to do it. If the inherent quality of safety in doing things right is emphasized constantly in the squadron, then the feeling that safety is an add-on will disappear. The command that always looks for shortcuts and faster ways to do things, without considering all of the consequences, will still feel that the safety program is a problem, but in these cases, it is their approach to safety and not safety that is the problem.

Objection 3: "Safety keeps people from doing their job." This is closely tied to the previous objection. The first question that needs a resolution is "which job?" Are the people qualified and trained for the particular job? Why not? Is the command manned to perform the job? Is the job really worth the risk of injury? Safety is primarily concerned with

ation safety programs!

preserving personnel and material assets, but the realization of the requirements to perform the mission has not been forgotten. In almost all cases, accidents occur when there are corners cut that unnecessarily increase risks. All too often we hear: "We didn't have enough time or men to do it right." These same commands often are forced to take time and personnel to conduct accident investigations, write CACO letters, etc. Leadership and direction before the fact could accomplish more with the time spent and yield additional positive results.

In peacetime, the Navy does not need gamblers. Men and planes are too valuable to be risked because it "probably will be OK." Consider the VP squadron that shortcuts maintenance to get an extra sortie out one day and then loses the aircraft. The result is that during the remainder of the deployment they have one less crew and plane with which to meet the schedule. The CO must provide guidance. Is this mission really worth it? Sometimes the decision *"not now"* must be made. The Ops officer and, ultimately, the CO must make the decision. If the safety officer has to push to have an unsafe evolution stopped, that's not his fault.

Objection 4: "Safety takes too much time. There is so much paperwork and so many procedures involved in the many programs that they are not efficient and force people to cut corners elsewhere to make deadlines." A typical example used is tool control. "My men spend more time filling out forms, running for tools, and inventorying them before and after use than they spend actually performing maintenance, in many cases." In some commands, that is almost true, but is it the program's fault? The purpose of tool control primarily is to prevent an airplane from flying with a tool in it. We have been very successful in achieving this goal in some commands, while others never seem to get a viable program operating. Too often this is because the maintenance department has been presented with a completed, rigid tool control program. Many personnel are unaware of why the program even exists. If this is the case, present the problem to the maintenance department and let the experts design a program that will work. If you don't, and they can't, people will find ways to short circuit or work around your program.

Objection 5: "The safety program is an end in itself. It forgets that our purpose is to accomplish a mission." The CO has the ultimate authority and responsibility for everything in a squadron, including safety. He must set the tone and direction of the program. If he sits back and abdicates this responsibility, then the safety officer will step in with his priorities, which are often different than the CO's, and build a program that he perceives will do the job. Safety officers have a right to this "tunnel vision," for they are trained to be concerned primarily with safety. It is the task of the CO to temper this view with the myriad requirements he faces in order to achieve maximum mission accomplishment. Safety officers have a part in this by working for the elimination or reduction of losses to personnel and equipment and by providing the impetus so that personnel are trained to perform work correctly and quickly. Without balance, safety can become an end in itself, but this is not desired or intended.

Objection 6: "We don't really need an aviation safety program or a safety officer." In some squadrons, this might be true. The squadron that has no accidents, incidents, ground accidents, motor vehicle accidents, recreational accidents, etc., doesn't really need a safety officer. The squadron that has detailed training programs conducted by professionals for professionals also may not need a safety officer. When all personnel know their jobs, take pride in their work, and are supervised by knowledgeable leaders, a unit does not need a safety officer or a safety program. Such a command demonstrates a genuine concern that no one person can create by himself.

The attitude must start with the commanding officer and his firm, consistent commitment to do things right. The attitude filters down through the department heads and supervisors as they are made aware of their responsibility for the safety of the personnel in their departments. Finally, it permeates the entire command. The result is that every man becomes a safety officer, responsible for his own actions and with a clear understanding of this responsibility. No, this command does not need a safety officer; it has 300, with the first being the CO. For all those commands that have not yet reached this state of awareness, someone is needed to remind people of their responsibilities in this area. The squadron safety officer can provide the knowledge, education, and leadership to stimulate the creation of the command evnironment described above.

In summary, all of these objections are a perception of the persons speaking and tend to be shortsighted approaches by individuals who really don't understand the real purpose of the safety program. Their goal is generally to do more quicker, not better. If we in naval aviation are as professional as we insist that we are, then safety must be a part of our actions. It is part of doing things the right way, and if you don't feel that way, maybe the problem is yours and not the program's. Safety is only one of the necessary tools which effective managers must use in accomplishing the mission. It is not and should never become a roadblock to prevent such accomplishment. ◄

LETTERS
to the editor

Survival Procedures in APPROACH

MCAS Beaufort – In reference to CDR Greear's article "Survival/Bailout Procedures" in your AUG '80 edition – IT IS ABOUT TIME!! This method of illustrating procedures is vastly superior to that currently used in NATOPS.

Of particular interest were the LPA inflation procedures. The article clearly illustrated, for the first time, the proper procedures for inflation. Similar techniques should be considered when introducing other new equipment and modifications.

We're looking forward to future articles of this type on survival/egress procedures for other naval aircraft.

Col J. M. Mead
MAG-31

• APPROACH looks forward to publishing CDR Greear's entire series of survival/egress procedures. This series will include techniques for each aircraft/equipment combination as well as new equipment such as the four-line release.

A Safety Rake?

Bethany, OK – It was with a resumption of disdain that I read the article "Inflight Engagement" in the AUG '80 issue. Again, or rather still, they go after hanging the pilot first. I thought by now we'd grown out of that. When will management mature? Of the eight items listed as "several interesting factors contributed to the accident," *only* the last – "A single proximity switch failure . . ." contributed! The other seven seem to fall into the syndrome of the pilot's expired physical being a factor for a blown tire (on a normal landing) due to FOD on the runway. Certainly any surfacing oversights, weaknesses, violations, or lack of skill/competency must be addressed by the appropriate squadron officer, but dammit, *not* all gathered in, as if by a rake, and then dumped into the accident basket!

If we would concentrate and restrict the thrust of the accident/incident war to the *causal factors* and only those, even if they are at times peripheral, then attack *them* with vigor, study, intelligence, and practical realism, I believe we would not only improve our statistical rates by a favorable quantum jump, but just as importantly our aviators' morale asymptotically.

CAPT Warren S. Parr, Jr., USNR-R

• All of the factors listed in the article contributed to the mishap; the failure of the proximity switch was the root cause. While it may have been prudent to indicate some priority to the contributing factors listed, failure to discuss all contributing factors to a mishap, however peripheral, could lead to simplistic solutions to complex, multifaceted problems.

Thoughts on Navigation

Annapolis, MD – I am responding to the article "Confessions of a NAVCOM" in the SEP '80 issue of APPROACH. The author should be applauded for "confessing" his mistakes and sharing what were obviously some terrifying moments. This P-3 crew was lucky; similar circumstances cost the Navy the lives of an aircrew out of Lajes who weren't as fortunate.

Having recently left a VP squadron in Jacksonville, this incident reminds me of problems I encountered as an Instructor TACCO. Many NAVCOM's thought they were monitors of the aircraft systems rather than controllers of these systems. This tendency to allow the aircraft to run the crewmembers must be overcome by a *thorough* knowledge of the avionics onboard the P-3 or any aircraft. We must be in control of the aircraft, not vice versa.

The second problem I often encountered was the complacency of the TACCO. Oftentimes, the TACCO got involved with his duties and forgot that the NAVCOM next to him was in the aircraft. OPNAV 3710.7 holds the TACCO responsible for navigation as well as the navigator (the plane commander also shares some responsibility). The TACCO is responsible to train and oversee the NAVCOM, as well as oversee the rest of the crew in the "tube" (e.g., the radar operator).

Finally, the old adage AVIATE, NAVIGATE, and COMMUNICATE is particularly true in this case. Every crewmember must be thoroughly familiar with his responsibilities in maintaining a safe flying posture; this also includes working as a crew and not as individuals.

LT Peter J. Reinhardt
U.S. Naval Academy

Welders' Gloves in P-3s

Alameda, CA – I read the AUG '80 article "A Safety Recommendation" with great concern. Can you visualize an inflight tech running around with a piece of equipment on fire with no place to put it?

Much of the upholstery in P-3 aircraft is highly flammable. P-3 aircraft have been in service for many years, and I cannot recall any equipment overheat or fire that was not handled by turning off the associated equipment or by merely pulling a circuit breaker and removing the equipment after it cooled down.

Welders' gloves were intended for welders. Using them in the recommended way could result in indiscriminate equipment removal and disastrous results.

LCDR M. J. Crisafulli
NARF Alameda

• VP-4's recommendation did not advocate indiscriminate equipment removal. It is difficult to understand how the ability to safely handle a piece of overheated equipment could be anything but a positive benefit.

Re: Bomb Bay Luggage Racks

Alameda, CA – There is not a flightcrew member in the P-3 community who does not know that bomb bay racks are a way of life in all squadrons. Your answer to the bomb bay luggage rack letter in the AUG '80 APPROACH is ridiculous.

Their use may be in direct violation of NATOPS, but is a necessary and acceptable violation. It does not require study, only implementation. Why do we make a simple implementation a difficult, time-consuming study that has been going on and off for years?

LCDR M. J. Crisafulli
NARF Alameda

• The concept of a "necessary and acceptable violation" of NATOPS is indeed unique. If this matter was so simple, NAVAIR approval and a NATOPS change would have already been accomplished. Until this is done, the use of the racks is not authorized.

APPROACH welcomes letters from its readers. All letters should be signed though names will be withheld on request. Address: APPROACH Editor, Naval Safety Center, NAS Norfolk, VA 23511. Views expressed are those of the writers and do not imply endorsement by the Naval Safety Center.

☆U.S. GOVERNMENT PRINTING OFFICE: 1980—735-003/20

SEATBELTS WORK.

TAKE OUR WORD FOR IT. DON'T FIND OUT BY ACCIDENT.

Naval Safety Center
NAS Norfolk, Virginia

Prop arcs can be a pain!

Naval Safety Center
NAS Norfolk, Virginia

Poster idea contributed by AT2 Howard Frazier, VP-44.